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Regulation of Algorithmic Disclosure: Challenges, Requirements, and Regulation

Xin Ren

School of Law, Beijing Normal University, Beijing, China

ABSTRACT

The rapid development and wide application of artificial intelligence technology greatly facilitates people's lives, and also arouses attention to the transparency, fairness and explainability of algorithmic decision making, and algorithmic disclosure has become an important decoding of such problems. However, algorithmic disclosure itself also has certain challenges. First of all, the development level of technology is the basis of disclosure behavior and supervision of algorithmic disclosure, which greatly affects the effect of algorithmic disclosure. Secondly, under the trend of cost-effectiveness, different entities show insufficient motivation for algorithm disclosure and supervision. In the algorithm disclosure, there are multiple purposes such as technology development and rights protection, which need to be balanced; In addition, the privacy and security issues involved in algorithmic disclosure also bring challenges to disclosure behavior. In this regard, we should make clear the rules of algorithm disclosure and improve the supervision of algorithm disclosure. On the one hand, through the clarification of the disclosure principle, the object and the form and content, the platform and other subjects are clearly guided. On the other hand, it also makes up for the deficiency of single supervision and increases the efficiency of algorithm disclosure by means of multiple regulatory bodies and regulatory methods.

KEYWORDS

Algorithm disclosure, Legal liability, Algorithm transparency, Algorithm governance

1. INTRODUCTION

With the technical iteration of big data algorithms and the platformization of deployment and application, data-based technical computing has rapidly grown into an emerging social force with resource allocation, and has become one of the core elements of artificial intelligence. Through the possession, processing and output of data, algorithms evolve into resources, commodities, property, intermediaries and even social forces. Algorithms are not only used in scientific research and artificial intelligence technology, but also gradually integrated into People's Daily life and become an important production tool for processing data. With the development of data and intelligent technology, algorithms have also penetrated into diversified public and private scenarios such as search engines, news recommendation, risk assessment, face recognition, and automatic driving, and even become an important agent decision maker in building social order. However, although the form of algorithm decision is objective and the operation is efficient, its technical characteristics can not always guarantee the robustness, legitimacy and rationality of the decision. At the same time, because of the complexity and opacity of the algorithm, it is often difficult to understand its internal operation mechanism and decision-making basis. This leads to the problem that some algorithms may be biased, discriminatory or unfair, as well as the resulting social impact and legal risks, and may even lead to serious social consequences. Therefore, more and more people begin to pay attention to the fairness,

transparency and explainability of algorithmic decisions, and algorithmic disclosure has become an important issue. In order to ensure the fairness, transparency and explainability of algorithms, and avoid potential social and economic impacts, algorithms need to be "disclosed".

At present, algorithms have become a new form of technical expression in society, and are also an important component of the field of artificial intelligence. Disclosure of algorithms is the premise of algorithm governance, and it is also an important measure for the government to regulate the compliance of large Internet platforms and protect the rights and interests of subjects in the digital era. Through algorithm disclosure, the relevant stakeholders can understand and evaluate the performance and impact of the algorithm, and algorithm disclosure is also conducive to weakening the algorithm black box and curbing the algorithm hegemony. Through the disclosure of algorithms, the transparency of algorithms can be increased, the public's trust in algorithm decision-making can be improved, and the rational application and development of algorithms can be promoted. At the same time, the algorithm disclosure also helps the regulatory authorities to effectively supervise the algorithm and ensure that the application of the algorithm complies with laws and regulations and social ethical requirements.

Practically, algorithmic disclosure also faces difficulties and challenges, for example, how to ensure the transparency of algorithms while protecting business secrets; How to balance a series of issues such as the public's right to know the algorithm decision and the enterprise's right to algorithm protection. Fundamental to these issues is the impact of algorithmic disclosure on technology, cost, and purpose. In view of the nature of algorithm as a new technology, this paper analyzes the challenges of algorithm disclosure from the aspects of technical capability, the difference of subject under the effect of cost and benefit, and the impact of multiple purposes of algorithm disclosure itself. Then it clarifies the system content of algorithm disclosure, and clarifies the object, form and content of algorithm disclosure. At the same time, for the regulatory authorities, algorithm disclosure is an important means to ensure the compliance and fairness of algorithms. Through in-depth understanding and review of the algorithm, the regulatory authorities can timely discover and correct the possible problems and risks of the algorithm, and protect the legitimate rights and interests of the public. Therefore, it is also necessary to sort out the subject and method of supervision to clarify the algorithm disclosure system and improve the efficiency of algorithm disclosure.

2. CHALLENGES TO ALGORITHMIC DISCLOSURE

2.1. Constraints of technical level

Technical complexity and professionalism are important challenges for algorithmic disclosure. Although the algorithm is interpretable to some extent, its interpretation is also limited. For the platform, its disclosure also needs to target users of different businesses, and may adjust the disclosure content according to the different needs of users' information and the development of technology, so it is very difficult to explain the algorithm. Many algorithms are complex in design and involve a lot of math and computer science theory, as well as a lot of data entry and processing. This makes it difficult for non-experts to understand how the algorithm works and the logic of its decisions. Even for professionals, it takes a lot of time and effort to understand and analyze algorithms in depth.

The level of technology imposes limitations on algorithmic disclosure itself. To a certain extent, algorithmic disclosure needs to be completed in the form of algorithms, so the development of algorithm technology will affect the effect of algorithmic disclosure. If the technology of disclosure channels and interfaces has not reached the level of algorithmic disclosure. Sharing and open source code is the simplest, but the least effective way to disclose algorithms; Because AI systems are so complex, even technical experts can't measure them.

On the other hand, technology also restricts the regulation of algorithmic disclosure. With the improvement of autonomous learning and self-innovation ability of algorithms, algorithm technology

is gradually separated from human supervision and intervention, and it is increasingly difficult for even professional and technical personnel to understand the operation logic of algorithms and interpret the results of algorithms. The autonomy, complexity and unexplainability of algorithm technology increase the difficulty of identifying algorithm responsibility. However, under the professional limitation of technology, it is easy to lead to the reduction or insufficiency of supervision, so that the algorithm disclosure is just a formality.

2.2. Cost-effectiveness impact

Algorithmic disclosure is fundamentally the behavior of the subject, which is affected by the subject's consideration of its own "cost and benefit". With the technical iteration of big data algorithms and the platformization of deployment and application, data-based technical computing has rapidly grown into an emerging social force with resource allocation. The disclosure of algorithms also implies the allocation of resources. On the one hand, the implementation of the algorithm disclosure behavior will be affected by the cost and benefit of the subject. Generally speaking, algorithmic disclosure is implemented by large enterprises and other algorithm developers and users. Admittedly, algorithmic disclosure is their compliance with rules and is also a requirement of market order. However, the behavior of algorithmic disclosure itself will increase the compliance cost of enterprises, and may also involve trade secrets, core technologies and other contents. Will reduce the incentive for algorithmic disclosure. For smes, the prior design, testing, and modification of algorithmic disclosures not only increases smes' participation in the rulemaking process, but also gives more power to business users. To a certain extent, this enhances the benefits of algorithmic disclosure for smes, and the benefits of obtaining algorithmic disclosure content.

On the other hand, cost-benefit also plays a role in the regulation of algorithmic disclosure. The regulation of algorithms is based on understanding the internal design and operation logic of algorithms. However, due to the complexity of understanding and cognition of algorithm technology, compared with developers themselves, the government has disadvantages in technology, cost and efficiency in the regulation of algorithm disclosure. It restricts the regulatory activities of the government and other regulatory agencies. For consumers, under the service of algorithm technology, there is " asymmetric collusion ", with large enterprises, and consumers bear a high degree of continuous monitoring in exchange for low or free personalized services. But in the long run, it is not only an erosion of their self-determination, but also a violation of their interests. However, there is an increasing problem of information asymmetry in the relationship between consumers and enterprises, worsens the problem of information asymmetry on the consumer’s side,and the increase in information cost makes consumers silent in the regulation of algorithmic disclosure of enterprises.

2.3. Tension for multiple purposes

Algorithmic disclosure can also be affected by multiple purposes to some extent. In the regulation of intelligent technology, we should not only pay attention to the security of technology, but also consider the development of technology. It is necessary to maintain the public interest, but also need to protect the relevant interests of algorithm enterprises. Through the possession, processing and output of data, algorithms evolve into resources, commodities, property, intermediaries and even social forces.As algorithm technology gradually becomes the cornerstone of social progress, the influence and control of algorithms are also increasing. The emergence of algorithm alienation has brought huge potential threats to individual rights and interests, market order, and even national security. Algorithm disclosure, as an important approach in algorithm governance, bears the important significance of the algorithm's legal compliance confirmation, and is also an important guarantee of technical security. However, the overload of algorithm disclosure may also hinder or limit the enthusiasm of the development of algorithm technology, thus blocking the progress and development of algorithm technology.

Meanwhile, the wide audience of algorithms, involving users, public interests, but also related to market order, national security, need to "rights protection" regulation algorithm disclosure. From the perspective of algorithm development and application enterprises, the degree, method and content of algorithm disclosure may be directly related to the interests of enterprises. As the main body pursuing its own interests maximization, enterprises will inevitably be affected by the pursuit of income in algorithm disclosure. The difference of goal under the interest orientation also causes the tension in the implementation of algorithm disclosure. According to the social hypothesis, voluntary disclosure of social and environmental information, based on the contractual relationship between enterprises and society, represents the acceptance of ethical responsibility by enterprises. However, algorithmic disclosure may also involve sensitive information such as trade secrets and personal privacy. It is necessary to balance the relationship between transparency and privacy protection in the disclosure process to ensure that the disclosed information is both adequate and compliant. Therefore, how to balance the interests of multiple parties in the algorithm disclosure requires careful consideration of disclosure requirements.

2.4. Privacy and security risks

In algorithmic disclosure, privacy protection and information security are also important challenges. Algorithms often involve a large amount of user data, including personally identifiable information, behavioral data and so on. In the process of disclosing algorithms, how to protect user privacy and prevent data leakage and abuse is a problem that needs to be handled carefully. If the information and data cleaning involved is not in place, or under the influence of technology, the disclosed information can be reversely extrapolated to a specific subject, the user's information will be directly exposed. For example, disclosing source code or individual user data does not help understand how an AI system operates and why it makes particular decisions, but it can open the AI system to abuse or manipulation, posing significant risks to user privacy and other interests.

At the same time, the algorithm itself may also have security vulnerabilities and attack risks. Knowledge of the underlying logic of algorithmic disclosure does not always guarantee the required security properties. Some forms of transparency and explicability may seem attractive, but they can carry considerable risks and do little to promote accountability and build trust. Even, the disclosure of the algorithm may also expose the defects of the technology, which facilitates the theft of technology, information and content by hackers and other innocent people, resulting in source data leakage and data security problems.

3. INSTITUTIONAL REQUIREMENTS FOR ALGORITHMIC DISCLOSURE

3.1. Principles of algorithmic disclosure

The EU's <General Data Protection Regulation puts forward rules such as "meaningful information" and "logic of participation in decision-making" for data subjects, so that algorithmic interpretation and disclosure first appeared in the system. In 2021, the United Nations issued a Recommendation on the Ethics of Artificial Intelligence, which listed transparency and explainability as one of the 10 principles of artificial intelligence technology. The principles of fairness, security and explainability are put forward. In a reply from the EU Data Protection Board, it is stated that The GDPR covers rules for the creation and use of most algorithms, including disclosure requirements for algorithms. Data controllers are required to take appropriate measures to inform data subjects about the use of their data in a concise, transparent, understandable and easily accessible manner. The Regulations on the Management of Internet Information Service Algorithm Recommendation issued by the State Internet Information Office of China put forward the obligation of algorithm interpretation, the core is the obligation of publicity of algorithm-related information and explanation of algorithm decision results, and encourages algorithm recommendation service providers to optimize the transparency

and interpretability of search, sorting, selection, push, display and other rules. The People's Bank of China issued the "Guidelines for the Disclosure of Information on Financial Applications of Artificial Intelligence Algorithms", which stipulates four principles in the disclosure of algorithms in the financial field, namely, law and compliance, true and accurate, timely and consistent, and complete and readable.

On the whole, the current algorithm disclosure follows the principles of transparency, truth and integrity. Although the effectiveness of the principle of algorithmic transparency is still controversial, there will be unintended opacity, strategic opacity and other phenomena. However, the principle of algorithm transparency has substantial significance in protecting the rights and interests of citizens, and can correct the imbalance of information. The principle of transparency is still an important way to implement algorithm disclosure and break the algorithm black box. At the same time, the fundamental purpose of algorithmic disclosure is to know the disclosed object, therefore, the principle of true and complete disclosure is particularly important, enterprises should adhere to the attitude of honesty and credit in algorithmic disclosure, provide comprehensive and objective information, shall not conceal or distort the key information of the algorithm, and shall not selectively disclose to mislead the public.

3.2. The object disclosed by the algorithm

According to the purpose of the algorithm disclosure, the object of the algorithm disclosure mainly includes two aspects: one is for the general public (such as users and other terminal subjects), and the other is for the regulatory authorities. For the two, the end public and regulators have different requirements for algorithmic disclosure under different interest needs, and they need to be considered differently.

In the algorithm disclosure based on the public, due to the complexity of the nature of public personnel and the diversity of scenarios, it has a great impact on enterprises. Therefore, it is necessary to comprehensively consider the public needs and scenario factors to determine the method and content of disclosure. It is necessary to develop a uniform disclosure process and content for all users, but also need to be personalized on a case-by-case basis, that is, in the outcome of a single user decision. However, due to the large number of objects, the cost of individual case disclosure will increase when the algorithm is disclosed to the public, and it is difficult to be satisfied in practice. Therefore, it is also necessary to pay attention to systematic interpretation and disclosure to all end users through protocols, privacy policies, etc. At the same time, the common terminal is used to speak, and its limited ability to give understanding needs to be disclosed in a more popular and non-technical language. From the perspective of demand, ordinary users may not pay attention to the technical details of the algorithm, but are more inclined to understand the personal rights and interests involved in the algorithm process, decision-making logic and other content.

In the disclosure of algorithms dominated by regulatory departments, the main purpose is to regulate algorithm technology to prevent and control algorithm risks. Generally, such disclosures are made in the filing of algorithmic technology, or in the case of a company facing regulatory investigation proceedings. For the former, algorithmic disclosure tends to be holistic and general. Regulators need to master the operation principle and decision-making process of algorithms in order to effectively supervise and manage algorithms. Through the disclosure of algorithms, the regulatory authorities understand the operation principle of algorithms, possible risks, and impact on enterprises and the public, so as to conduct timely correction, ensure that the application of algorithms complies with laws and regulations and social ethical requirements, and prevent the abuse and misuse of algorithms. For the latter, the enterprise needs to provide a comprehensive explanation of the problem algorithm, including the disclosure of internal technologies and external influences, as well as an explanation of the different stages of the algorithm. In addition, for regulators, it is also necessary to pay attention to the needs of the average user, if the user believes that the decision is unfair or wrong. Professionals

need a more comprehensive explanation of the technical details in order to assess whether AI systems meet general or regulatory requirements such as reliability and accuracy.

3.3. The form of algorithmic disclosure

At present, there is no uniform and specific regulation on the method of algorithm disclosure at the legal level. This is because the methods of algorithmic disclosure may vary according to different laws, industries, application scenarios, and technical characteristics. However, from some existing systems, the transparency and understandability of algorithm disclosure are generally emphasized, and enterprises are required to disclose the relevant information of algorithms in a clear, accurate and easy to understand way. According to the United States Algorithmic Accountability Act of 2019, the degree of transparency of algorithmic automated decision-making should be based on the specific application scenarios of algorithms, the content of personal information processing, and the corresponding risk rating, and the specific form of transparency should be considered according to the risk level. In February 2022, the states of Oregon, New Jersey, and New York proposed the Algorithmic Accountability Act of 2022, which imposes new transparency and accountability requirements on algorithms. In particular, it is disclosed and evaluated against bias, effectiveness, and other factors of the algorithm. The People's Bank of China issued the Information Disclosure Guide for Financial Application of Artificial Intelligence Algorithms, which stipulates that financial institutions can disclose information related to financial application of artificial intelligence algorithms through online channels such as official websites by means of corporate self-declaration, information disclosure reports, and product and service manuals.

In practice, the most direct form is direct disclosure to the affected individual, that is, direct communication in the interaction between the individual and the algorithmic system, explaining to the individual the cause and result orientation of the algorithmic system to produce a particular decision. In the disclosure method, we can provide the interface of algorithm document, publish algorithm report and open algorithm excuse. The disclosure method of algorithm documents is mainly applied in the regulatory filing, and the algorithm documents are prepared by the algorithm development and operation subjects and are disclosed and filed for the public and regulatory agencies to consult. The publication of the algorithm report can be used as a regular or special disclosure method. The operation effect and potential problems of the algorithm are disclosed by the algorithm development and operation subject for no specific subject. Algorithm interface development is a direct disclosure method for specific subjects, through open access rights, allowing third parties to contact, verify and test the content of the algorithm to ensure the accuracy and openness of the algorithm disclosure. At the same time, knowledge graphs can be used to achieve differentiated targeted disclosure, Classification of algorithm disclosure of different types and industries is carried out, and differentiated provisions are made for algorithms in different fields and industries. China's "Regulations on the Management of Internet Information Service Algorithm Recommendation" points out that the classification management of algorithm recommendation service providers should be implemented according to the public opinion attribute of algorithm recommendation service or social mobilization ability, content category, user scale, the importance of data processed by algorithm recommendation technology, and the intervention degree of user behavior.

The disclosure of algorithms requires the control of timing. If at the beginning of the formation of technology, it is easy to hinder the development of technology by too early or too strict control only by speculating and predicting risks. On the contrary, if the intervention is too late or too light, it will cause the negative effects of the technology to break out, increase the cost of control, and even fail to change its negative effects. When the adverse consequences are discovered, the technology has often become a part of the entire social and economic structure, and it is difficult to control it, resulting in the "Collingridge dilemma" of algorithm disclosure. Therefore, the timing of algorithm disclosure should also pay attention to the protection of algorithm technology and the control of its risks.

In addition, it is also necessary to set up incentive mechanisms to enhance the subject's enthusiasm for algorithmic disclosure. The complexity of different industries and algorithm technologies increases the difficulty of algorithm disclosure to some extent. More technology needs to be disclosed and it is difficult to control the level of disclosure. Although large platforms and other technological inventions and owners have the obligation of algorithmic disclosure, in order to reduce the negative benefits of disclosure, incentive measures should be adopted to improve the enthusiasm of the subject to algorithmic disclosure. Within the algorithm disclosure system, the subject can be encouraged to disclose the algorithm by helping the disclosure review, reducing the patent costs related to the disclosure algorithm, and at the same time, the algorithm disclosure can also be incentivized by funding, government replication, tax relief and other ways outside the algorithm disclosure system.

3.4. The content disclosed by the algorithm

There are already several laws governing what algorithms can disclose. In the case of algorithmic processing of personal data, the EU's General Data Protection Regulation requires disclosure of information including but not limited to: the purpose of the data processing, the recipient of the data, the retention period of the data and the rights of the data subject (such as the right to access, correct and delete the personal data). The California Consumer Privacy Act (CCPA), while not directly regulating what algorithmic disclosures can be made, requires companies to disclose the types of personal data they collect, their purpose, and whether they sell or share it to give consumers more control over their data. The French Act on the Republic of Numbers stipulates the algorithm interpretation right for the public sector, stipulates that the algorithm interpretation right is only applicable to administrative decisions, and specifies the specific content and scope of disclosure. The Automated Decision Directive for Public Sector Algorithms in Canada sets out the interpretation obligations of the public sector to which algorithmic decisions apply. The Regulations on the Management of Internet Information Service Algorithm Recommendation issued by the State Internet Information Office of China Algorithm recommendation service providers are required to inform users of their provision of algorithm recommendation services, and publicize the basic principle, purpose and main operating mechanism of algorithm recommendation services. In the "Guidelines for the Disclosure of Financial Application Information of Artificial Intelligence Algorithms" issued by the People's Bank of China, the disclosure content includes seven aspects, namely, the disclosure of algorithm combination information, algorithm logic information, algorithm application information, algorithm data information, algorithm subject information, algorithm change information and algorithm audit information.

It can be seen that at present, countries have different practice rules for the content of algorithm disclosure, but in general, the content of algorithm disclosure usually includes the design principle, operation mode, decision-making logic, data source and collection mode, data processing and analysis process, algorithm operation results and its impact. This information helps people understand how algorithms make decisions and what consequences those decisions may have. Among them, the design principle, operation process and decision logic of the algorithm are the primary contents of disclosure. Through these contents, the working principle of the algorithm is explained, including the process of data collection, analysis and processing, as well as the logic of decision making. By making this information public, the public can better understand how the algorithm works and, in turn, assess its fairness and accuracy. For the disclosure of data sources, collection methods and other contents, the emphasis is on the control of the program to regulate the algorithm's contact and use of data. On the other hand, the disclosure of the result and its influence can control the influence of the algorithm output before and after the result, so as to promote the algorithm to be good.

In addition, public-facing disclosures of algorithms may include statistics about the results of an algorithmic system, a description of the underlying data and technical architecture of the algorithmic system, and a more comprehensive examination of its impact. For different industries, there should also be targeted disclosure content, such as the financial law field may prefer to disclose the key

parameters and assumptions of its risk assessment algorithm, so that investors and clients can understand how the algorithm affects their decisions. The medical field is more inclined to disclose the basis and accuracy of its diagnostic or treatment algorithms to ensure that patients can make informed treatment choices, among other things.

4. REGULATION OF ALGORITHMIC DISCLOSURE

4.1. The regulatory body of algorithm disclosure

In the systematic construction of algorithmic disclosure, the supervision of algorithmic disclosure is also an important link to optimize algorithmic disclosure. Under the execution of public power, the government naturally has the right to supervise the disclosure of algorithms. At present, the Digital Services Commission has been set up by the European Union through the Digital Services Act to act as an independent advisory body to the digital Services Coordinators of the Member States and to provide advice to the national digital Services Coordinators and the European Commission in accordance with the specific provisions of the Digital Services Act. The US Federal Trade Commission's (FTC) Office of Technology and the Consumer Financial Protection Bureau (CFPB) also have regulatory authority over algorithm-related content, the UK's Office of Communications (OFCOM) and the European Centre for Algorithmic Transparency. These and other agencies have also begun to implement new AI regulatory approaches and policies. The regulatory authorities require enterprises to take the initiative to disclose algorithms in accordance with relevant laws, regulations and policies, and accept the review and supervision of the regulatory authorities. At the same time, the regulatory authorities will evaluate the algorithmic information disclosed by enterprises to ensure that it conforms to the principles of fairness, justice and transparency, and to prevent the abuse and misuse of algorithms. In the regulation of algorithms by the government and other departments, on the basis of guaranteeing the artificial intelligence research environment, it also aims to protect the interests of users and the public and prevent the abuse of algorithms.

The regulatory system of algorithmic disclosure should be constructed from multiple and multi-level perspectives, among which enterprise self-regulation is one of the important ways. At present, there are provisions to guide platform enterprises to promptly and proactively disclose the self-examination and disposal of illegal content, and to investigate major risks and hidden dangers for timely early warning. The supervision of algorithmic disclosure issues by enterprise platforms makes it easier to identify risks and problems at the source. As algorithm developers and operators, enterprises have certain obligations to the operation and evolution of algorithms, and/operators have certain obligations to the evolution of algorithms. Taking it as a regulatory body can also reverse promote the suppression of damage. To address the issue of independence in internal oversight, see Facebook's Independent review board system. Facebook reviews decisions or user feedback on Facebook and Instagram through an independent review board, helping share the burden of social media regulation on government agencies.

For the regulation of algorithmic disclosure, it is necessary to guide the participation of social theory. By attracting social subjects capable of discovering and preventing algorithm risks into the algorithm disclosure regulatory system, it can effectively make up for the shortcomings of enterprise self-regulation and government regulation. First, the public can be included in the regulatory body of algorithmic disclosure. For the public, algorithmic disclosure can increase their understanding of algorithmic decisions and thus better assess the impact of algorithms on their lives and work. Therefore, the public has a certain enthusiasm for algorithmic disclosure. At the same time, the public also needs to accept and coexist with algorithms under the development of technology, and have the ability to recognize and resist algorithmic control and resist algorithmic risks. From the perspective of protecting public rights and interests, guide the public to treat algorithm technology rationally, enhance the way for the public to supervise algorithm, and strengthen the public's ability of self-

defense and exercise rights when the algorithm infringes. Therefore, we should also create channels and provide incentives for social forces to participate in the regulation of algorithms, and supervise and feedback algorithms through disclosed information. The public's supervision of algorithm disclosure can promote the improvement and optimization of algorithms from the perspective of "applicable".

Secondly, it is also possible to consider the regulation of algorithmic disclosure by the industry or third-party institutions. In 2018, New York City created the Algorithmic Accountability Task Force, an external third-party organization tasked with investigating how government agencies use algorithms to make decisions that affect individuals' lives. And make the decision-making process understood by the public and ask for accountability. Compared with the government, the public and other subjects, the industry or third-party institutions are more professional about algorithm technology. Based on the cognition of "peers", the industry or third-party institutions have certain professional knowledge and ability to review algorithm disclosure, and can judge whether the disclosure content is clear and complete, and whether the disclosed algorithm will affect the market or the rights and interests of other parties. The independence of third-party institutions also reduces the possibility of "rent-seeking" to a certain extent, and improves the authority and credibility of algorithm supervision. At the same time, using digital platforms as regulatory intermediaries, Helping remove practical barriers to algorithmic regulation, as well as address the lack of pre-existing oversight bodies for certain ADS categories that affect critical socioeconomic decisions at scale.

4.2. Regulatory approach to algorithmic disclosure

Positive guidance and appropriate regulation of digital platforms are key to the health and prosperity of the digital economy. It should be noted that the fundamental purpose of algorithm regulation is to achieve win-win interaction between the state and the market, enterprises and the public through the governance of algorithm technology. From the perspective of public utility supervision, it is easy to produce the problem of regulatory transition or lack of supervision, or slack supervision, resulting in the power of enterprises to laissez faire, or transitional supervision, affecting the innovation enthusiasm of enterprises. Because it is difficult to produce sufficient differentiation of interests, it is easy to produce the consequences of " Either management is missing or not in place, or it is too strict to develop ". Therefore, for algorithm supervision, the difficulty is to build a comprehensive and systematic regulatory framework, and improve the regulatory structure system by refining and unifying the regulatory methods of algorithm disclosure.

First of all, the basic regulation of algorithmic disclosure, including regular reporting, review system, accountability mechanism and other ways. Basic regulatory models are already being used in practice, but such regulatory approaches should focus on the balance between different sectors and the values involved. Especially when an algorithm system has multiple value objectives, in view of the lack of value judgment ability of the algorithm system, it is impossible to independently negotiate conflicting value objectives, so it is necessary to clarify the sequence of these value objectives in supervision, and evaluate and record the priority of these different value objectives. At the same time, the basic supervision method can also be optimized by establishing an impact assessment mechanism. The purpose of the Algorithmic Accountability Act of 2019 is for the Federal Trade Commission to conduct automated decision-making system impact assessments and data protection impact assessments of entities that store, share, and use personal information. In order to add the algorithm impact assessment system on the basis of the accountability mechanism, and clarify the review and accountability of the algorithm. Through the impact assessment mechanism, the dynamic development of regulatory methods is promoted to balance the contradiction between technological development and institutional lag.

In the meantime, there is also a need to innovate the regulatory approach to algorithmic disclosure. The regulation is optimized for the technicality of the algorithm and its wide application. First, a

distributed AI regulatory approach can be adopted based on algorithmic technology. To regulate the disclosure of algorithms in different fields, different industries, and even different stages, according to the differences of various algorithms in terms of technical motivation, operating mechanism, profit and loss definition, adopt a classification and classification method to adjust the regulatory intensity and different levels of subject responsibility. The use of technical means to achieve the regulation of algorithmic disclosure, such as the use of blockchain, artificial intelligence and other technical supervision, to improve efficiency and accuracy. Secondly, the concept of governance supervision can also be adopted to pay attention to the conflict of interests of the subject and form a conflict coordination plan, and the algorithm disclosure risk can be solidified into a dangerous control node. Based on the allocation of regulatory resources, regulatory consistency and regulatory synergy, the algorithm disclosure is evaluated and risk identification is carried out, and the effectiveness of the regulatory synergy framework is comprehensively evaluated by combining the feedback loops of end-users, industries, society and other subjects.

5. CONCLUSION

The development of algorithm technology has injected vitality into the artificial intelligence industry and also brought profound changes to people's lifestyle. At this stage, both platform enterprises and technical fields focus on the development and application of algorithm technology, forming a multi-industry and multi-field main interaction with algorithm technology as the center. In the face of the uncertainty of algorithm technology itself, the disclosure of algorithm has become an important governance topic. The rules of algorithmic disclosure should also answer the questions of how to deal with the technical risks of the algorithm itself, how to guide the impact of the algorithm disclosure process on the cost benefit of the subject, how to adjust the purpose of disclosure among multiple subjects, and how to balance the development of technology and privacy security. In this regard, clarifying the requirements of algorithmic disclosure and improving the supervision of algorithmic disclosure have also become the core content. Rules and institutions should also adapt to the continuous development of technology, and in the future, they also need to continue to explore and optimize from the core elements of regulatory infrastructure, regulatory tool system, regulatory structure reform and regulatory institutional environment.

REFERENCES

[1] Araujo, T., Helberger, N., Kruikemeier, S., & De Vreese, C. H. (2020). In AI we trust? Perceptions about automated decision-making by artificial intelligence. AI & SOCIETY, 35, 611–623.

[2] Nicholas Diakopoulos: “Algorithmic Accountability: Journalistic investigation of computational power structures”(2015)3(Issue 3)Digital Journalism, p. Pages (from-to)398-415.

[3] Sandra Braman, “Change of State: Information, Policy, and Power”, Cambridge: the MIT press, 2006, pp.11-12.

[4] Nicholas Diakopoulos: “Algorithmic Accountability: Journalistic investigation of computational power structures”(2015)3(Issue 3)Digital Journalism, p. Pages (from-to)398-415.

[5] Inga U lnicane, William Knight, Tonii Leach, Bernd Carsten Stahl & Winter-Gladys Wanjiku. (2021) Framing governance for a contested emerging technology: insights from AI policy. Policy and Society 40:2, pages 158-177.

[6] Dow Schüll N (2012) Addiction by design. Princeton University Press, New Jersey.

[7] See Sandra Braman, “Change of State: Information, Policy, and Power”, Cambridge: the MIT press, 2006,pp.11-12.

[8] Mathews M R. Social and environmental accounting:A practical demonstration of ethical concern?[J]. Journalof Business Ethics, 1995, 14(8), p.663-671.

[9] Zhang L, Jajodia S, Brodsky A. Information disclosure under realistic assumptions[C], 2007.

[10] EDPB response to the MEP Sophie in't Veld's letter on unfair algorithms [EB/OL]. [2021-12-22]. https://edpb.europa.eu/sites/default/files/files/file1/edpb_letter_out2020_0004_intveldalgorithms_en.pdf.

[11] Stohl, Cynthia, Michael Stohl, and Paul M Leonardi. “Managing Opacity: Information Visibility and the Paradox of Transparency in the Digital Age.” International journal of communication (Online) (2016): 123-. Print.

[12] Wyden, Booker and Clarke introduce Algorithmic Accountability Act of 2022 to require new transparency and accountability for automated decision systems [EB/OL].[2022-01-5].https://www.wyden.senate.gov/news/press-releases/wyden-booker-and-clarke-introduce-algorithmic-accountability-act-of-2022-to-require-new-transparency-and-accountability-for-automated-decision-systems.

[13] Araz Taeihagh. (2021) Governance of artificial intelligence. Policy and Society 40:2, pages 137-157.

[14] Collingridge D. the Social Control of Technology[M].Milton Keynes,UK: Open University Press,1980.11,11,16-17,11,11,12.

[15] Luciano Floridi, Distributed Morality in an Information Society, Science and Engineering Ethics, Vol.19: 727, p.728(2013).

[16] What you need to know about the board deciding Trump's fate on Facebook [EB/OL]. [2022-02-28].https://www.cnn.com/2021/05/04/tech/what-is-facebook-oversight-board/index.html.

[17] What you need to know about the board deciding Trump's fate on Facebook, https://www.cnn.com/2021/05/04/tech/what-is-facebook-oversight-board/index.html

[18] Cohen, M., & Sundararajan, A. (2015). Self-regulation and innovation in the peer-to-peer sharing economy. The University of Chicago Law Review, 82, 116–131.

[19] Abbey Stemler, Joshua E. Perry, Todd Haugh, The code of the platform[J].Georgia Law Review 2020,54(2): 605-662.

[20] JamesMcgrath&AnkurGupta,WritingaMoralCode:AlgorithmsforEthicalReasoningbyHumansandMachines,Religions,Vol.9:240,p.240-259(2018).

[21] Algorithmic Accountability Act of 2019[EB/OL]. [2022-01-25].https://www.congress.gov/bill/116th-congress/house-bill/2231/text.

[22] Secretary of State for Science & Innovation and Technology, A Pro-Innovation Approach to AI Regulation, Mar. 29, 2023, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1146542/a_pro-innovation_approach_to_AI_regulation.pdf., last visited on April.10, 2023.